



NOAA, NATIONAL WEATHER SERVICE, WEATHER FORECAST OFFICE

Miami, Florida 33165

El Niño Could Set the Stage For Stormier Weather This Coming Winter and Spring

The National Weather Service forecast for the upcoming winter and spring season of 2009-2010 is for [El Niño conditions to persist and strengthen over the Pacific Ocean](#). El Niño, Spanish for “The Child”, is characterized by a warming of waters in the central and eastern equatorial Pacific waters which typically peaks around Christmas. This warming of the Pacific to above normal values affects large scale weather systems across North America, particularly Florida. The main impact of El Niño in Florida is typically a wetter and stormier winter and early spring, with an enhanced threat of severe weather and tornadoes.

The present El Niño developed in the early summer and is presently in the weak phase. [Latest forecasts and outlooks from NOAA’s Climate Prediction Center](#) indicate that this El Niño will likely reach moderate strength during the 2009-2010 winter season. If the current El Niño develops as expected, south Florida can expect higher than normal rainfall amounts as well as an increased threat of severe weather, including tornadoes. Even if El Niño remains weaker than forecast, the probability of severe weather will still be higher than in years with no El Niño.

The last significant tornado outbreak in south Florida occurred on March 27, 2003 during a moderate El Niño episode. [A total of 8 tornadoes were sighted across south Florida](#), and one person was killed in the Liberty City/Brownsville section of Miami when an EF2 tornado with winds well in excess of 115 mph ripped through northern sections of Miami-Dade County. The last El Niño episode of 2006-2007, although it did not result in any significant severe weather in south Florida, included a significant tornado outbreak in central Florida which resulted in the deaths of 21 people during the early morning hours of February 2, 2007.

The increased probability of severe weather is due in large part to a stronger jet stream in the upper levels of the atmosphere which tends to be located farther south over the Gulf of Mexico and Florida during El Niño seasons (Figure 1). As a result, low pressure systems tend to form

farther south, often tracking from the Gulf of Mexico east or northeast across the Florida peninsula. This southern storm track creates favorable conditions for strong to severe thunderstorms, particularly along and ahead of cold fronts moving down the peninsula (Figure 2). The wind shear associated with the jet stream also enhances the threat of tornadoes with any of the pre-frontal severe thunderstorms

Rainfall is expected to be above normal this upcoming winter and spring, due to increased moisture carried eastward from the Pacific Ocean by the jet stream (Figure 3). The rainfall typically occurs as cold fronts move down the state and affect south Florida. However, precipitation is normally not uniformly distributed during an El Niño winter and spring, which can result in the possibility of prolonged periods of dry weather more typical of the south Florida dry season. The average dry season rainfall over south Florida ranges from 12 to 15 inches over interior and western sections to 15 to 21 inches over eastern metro sections.

There is also an increased likelihood of below average temperatures as cloudiness and additional rainfall are expected to keep temperatures lower (Figure 4). The trend for cooler temperatures is typically most noticeable with slightly lower maximum temperatures during the day than with overnight low temperatures. The stronger and southward position of the jet stream tends to limit or prevent the southward penetration of frigid arctic air masses from the northern United States and Canada, thereby reducing the threat of significant freeze events. However, this trend is mostly observed with stronger El Niño events, and freezing temperatures have occurred in south Florida in previous weak and moderate El Niño seasons. During the moderate El Niño of 2002-2003, a series of cold air outbreaks affected south Florida in January 2003, resulting in freezing temperatures and an estimated 2 million dollars in crop damage to interior sections of the peninsula. The average winter temperatures over south Florida range from 64 to 66 degrees over interior and western areas to 67 to 69 degrees over eastern metro areas.

South Floridians are urged to stay informed of potential severe weather events this upcoming winter and spring. It is difficult to determine exactly how much and where severe weather will occur. Therefore, the best course of action is to have a preparedness plan in place. Ensure that you and your family know in advance where to shelter in the event of a tornado and move there quickly if a warning is issued for your area or severe weather becomes imminent. Your plan should also include having a [NOAA Weather Radio](#) which broadcasts National Weather Service warnings, watches, forecasts and other hazardous information 24 hours a day. In addition, it is suggested that you have a backup method to receive weather alerts such as using a text message service to have warnings sent directly to your personal cellular phone.

Stay tuned to local media outlets and NOAA Weather Radio for the latest weather information. For more information on the expected impacts of El Niño in south Florida, as well as for

updated local weather information and outlooks, please visit the National Weather Service in Miami web site at weather.gov/southflorida.

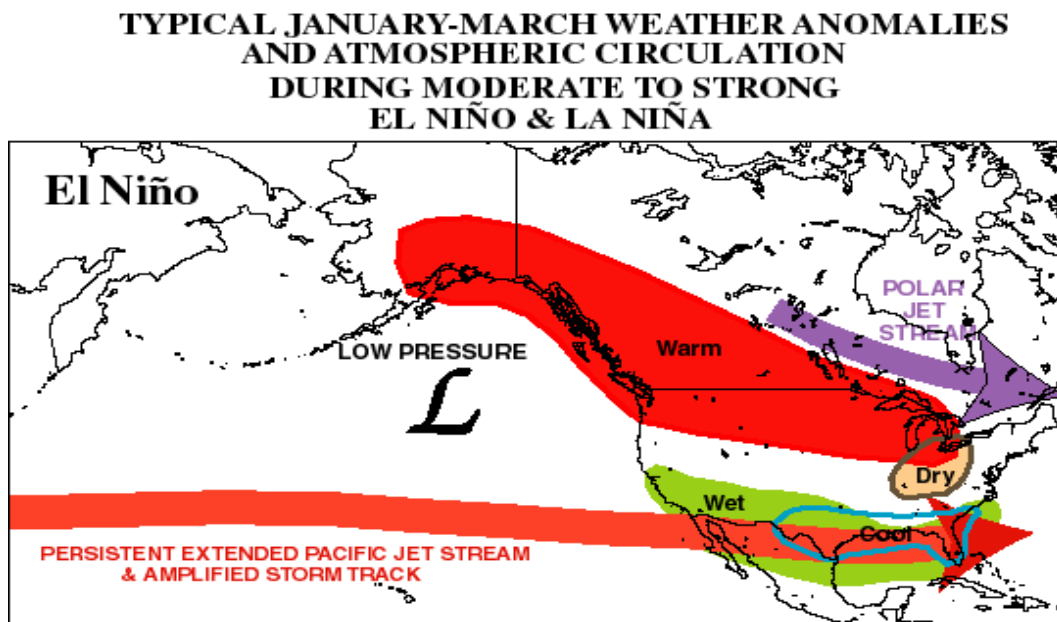


Figure 1: Typical weather pattern observed during El Niño winters.

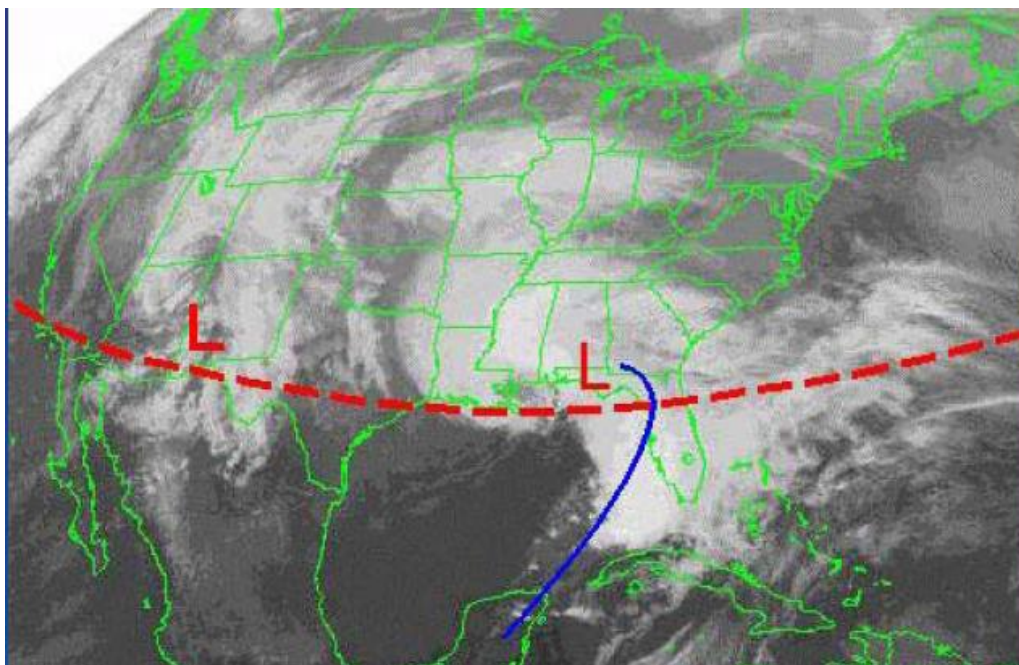


Figure 2: Storm Track During Strong El Niño Episodes

U.S. Winter Outlook Precipitation

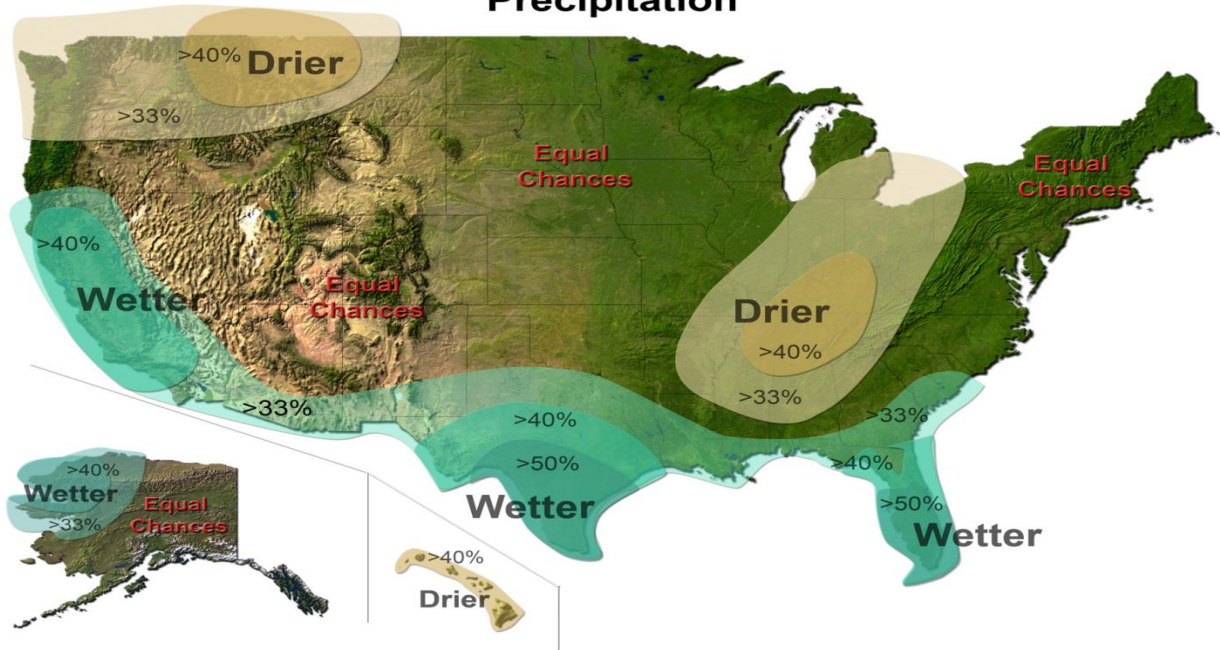


Figure 3: Precipitation Outlook December-February

U.S. Winter Outlook Temperature

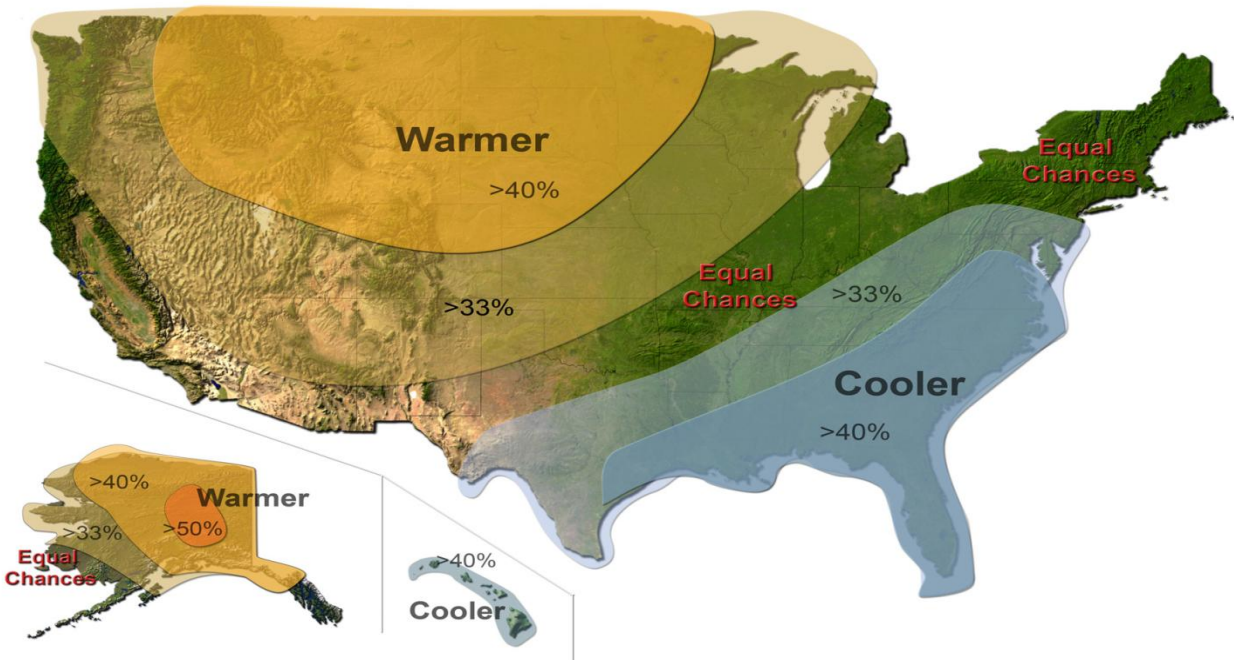


Figure 4: Temperature Outlook December-February